

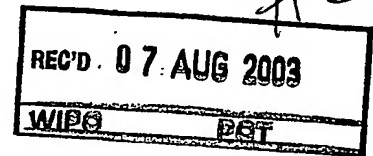
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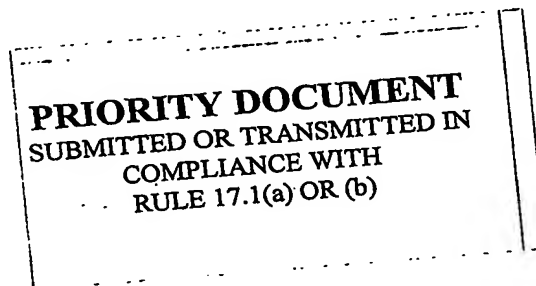
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Patentanmeldung Nr. Patent application No. Demande de brevet n°

02078266.0



Der Präsident des Europäischen Patentamts;  
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets  
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R C van Dijk

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Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:  
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.  
If no title is shown please refer to the description.  
Si aucun titre n'est indiqué se référer à la description.)

Responsive input unit

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Responsive input units

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(44)

## FIELD OF THE INVENTION

The present invention relates to the usage of input units to select and control applications for networked output units, such as visual screens etc.

5

## BACKGROUND OF THE INVENTION

The number of screens, such as cathode ray tube screens, liquid crystal display screens, plasma screens, touch sensitive screens, etc. has increased dramatically during recent years and the number is still expected to increase, especially since home electronics and personal goods, raising in numbers, tend to include screens or displays to illustrate, for example, the operation mode, settings and available options. Screens have become an important interface between man and the machine.

This interface thus visualizes one or several applications on a screen. For the television screen, the main applications, including watching television or video and playing games, are currently relatively few. For the personal computer screen, however, a variety of tasks and activities can be supported. More and more screens have received an identity and an association to a network address, and hence have become part of a networked environment. Being networked screens become generic, i.e. they support numerous applications. The basic concept will be that 'a screen is a screen'. The applications to be supported, apart from the watching television or video, and playing games, as mentioned above, could for example be, using it as a whiteboard, sending and receiving E-mail messages, video-conferencing, browsing a photo collection, selecting music, to mention a few.

Each application to be visualized on a screen can be controlled by a so called input unit. For the control of these applications there is typically used one or two input units. For a television screen there is mainly used one input unit, i.e. the remote control, whereas two input units, the mouse and the keyboard, typically are used to control a screen connected to a personal computer.

The applications or activities to be visualized on a screen accordingly outnumber the commonly used input units. For this reason, these input units have received a general function, i.e. they have become generic. For this reason each application will have to be selected from a menu structure that increases in complexity with the number of applications that can be selected, from said structure. Going through menu structures, having numerous curtains, in a search for an application is tiresome and tends to prevent the user from finding the searched application, rather than directing him towards it. Already after a few steps of navigation in the menu structure, people become more reluctant to use the application. The usability of each such generic input unit will thus suffer from a lengthy and roundabout procedure to select, as well as to control, the desired application.

There is thus a need for a method to enable quick and easy access to, and control of, an application, when using an input unit to control a generic screen.

The state of the prior art in the field of computer peripherals is exemplified by document US 2002/0002490, that discloses a system for influencing a web consumer to keep a branded computer input unit that has a hard-wired or programmable switch that directs the web consumer to a specific web site that is operated by the sponsor of the computer input unit, thereby influencing the web consumer to continue to access the web site of the sponsor when the owner is seeking goods or services provided by the sponsor, and wherein the computer input unit can provide any combination of web navigation, computer input ports, enabling of e-commerce, telephonic communication, and audio reproduction.

This input unit is capable of simplified web navigation by providing useful features such as scrolling, moving forwards and backwards and zooming. Said unit can further be personalized by programming buttons for direct access to selected web sites and by choosing personal images to be displayed on the input unit.

An advantage of the computer input unit is hence to provide improved web navigation.

A drawback of the input unit as explained above is that it is restricted to the usage of directed web browsing.

Another drawback of said input unit is that it is restricted to the usage of activities at specific web sites to be visualized on computer screens.

Yet another drawback is that said input unit is specially designed to control a single application, on a single screen without being equipped with an intelligence to identify the input unit in action or to determine the wanted application or to decide the screen, in case there is a number of input units, a number of applications and a variety of different screens.

It would thus be advantageous over prior art to provide a method to enable an input unit to select and control an application to be visualized on an arbitrary screen.

It would also be advantageous over prior art to provide a method to enable an input unit to select and control an application to be visualized on a selection of arbitrary screens.

Further, it would be advantageous over prior art to provide a method to enable an input unit to select and control an application to be visualized on a screen, which input device is especially suited for applications of the same type as the selected application.

In addition it would be advantageous over prior art to provide a method to enable an input unit to circumvent the process of searching through lengthy and complex menu structures to select and control a desired application.

It would furthermore also be advantageous over prior art to provide a method to enable an input unit to select an application to be visualized on an arbitrary screen, which screen is decided in dependence on the strength of a signal, that is transmitted by the input unit.

## SUMMARY OF THE INVENTION

It is an object of the invention to provide a device in which an input unit easily can select and control a whole application without the need for the user to navigate through lengthy and complex menu structures.

It is also an object to simplify the selection of applications when there are several applications and input units present.

This object is achieved by a first aspect of the present invention, where there is provided a device for selection of an application comprising, at least a first application unit, at least a second application unit, at least one output unit, a first input unit associated with at least a first application unit, a second input unit associated with at least a second application unit, and a control unit, arranged to identify an active input unit, and to present the associated application on the output unit, upon the identification of an active input unit.

This object is also achieved by a second aspect of the present invention where there is provided a method of selecting an application to be presented on a least one output unit, where a first input unit is associated with at least one first application and a second input unit is associated with at least one second application, including identifying an active input

unit, and presenting the associated application on the output unit, upon the identification of the active input unit.

It is another object of the invention to provide a system with which an input unit can select and control an application to be visualized on an arbitrary screen.

5 It is yet another object of the invention to provide a system with which an input unit can select and control an application to be visualized on an arbitrary screen, which screen is determined by the closeness between said screen and said input unit.

These objects are achieved by a third aspect of said invention, where there is provided a device, comprising the features according to the device of the first aspect, as well  
10 as at least a first output unit, at least a second output unit, at least two interface units, each being related to a different output unit, arranged to measure a signal strength of a signal, emanating from the input unit, and where the control unit further is arranged to select an output unit in dependence of the measurement.

These objects are furthermore also achieved by a fourth aspect of the present  
15 invention, where there is provided a method comprising the steps of the method according to the second aspect, the step of determining the output unit, among at least two output units, onto which to present the associated application, as well as the steps of measuring the strength of a signal, emanating from the input unit, at, at least two interface units, each related to a different output unit, and selecting an output unit in dependence of the  
20 measurement.

In accordance with a fifth aspect of the present invention there is provided a device comprising the features according to the device of the first aspect, as well as at least one motion sensor, arranged to sense a motion of an input unit.

In accordance with a sixth aspect of the present invention there is provided a  
25 method comprising the steps of the method according to the second aspect, as well as the step of sensing a motion of the input unit.

In accordance with a seventh aspect of the present invention there is provided a device comprising the features according to the device of the third aspect, as well as a signal strength determination unit, arranged to determine the highest signal strength measured  
30 by the interface units.

In accordance with an eighth aspect of present invention there is provided a method comprising the steps of the method according to the fourth aspect, as well as the steps of selecting the output unit for which the corresponding interface unit has measured the highest signal strength.

There has thus been described a device and a method according to the present invention with the following advantages.

5 The method and device, according to the present invention, for selecting an application to be presented on an output unit has the advantage over the prior art in that it enables a quick and easy access to the application, since the input unit is associated with an application unit of the chosen application, and control of the application, since the input unit is specially designed for applications of the same type as said associated application, when using the input unit to present or display the association on a generic screen.

10 Another advantage of the device according to the present invention, is that it enables an input unit to select an application to be visualized on a screen, which input unit is specially designed for the selected application.

Yet another advantage of the device according to the present invention is that it circumvents the process of searching through lengthy and complex menu structures, when selecting the desired associated application to be displayed on an output unit.

15 Still yet another advantage of the present invention is that it enables an input unit to select an application to be visualized on an screen, which screen is determined by the strength of a signal, that is transmitted by the active input unit.

In relation to certain aspects of the present invention, the method and device according to the invention also has the following advantages:

20 it enables an input unit to select an application to be displayed on an arbitrary screen.

it can also comprise a selection of arbitrary screens, onto which the selected applications can to be displayed.

25 it enables further an input unit to select an application, by using a wireless contact between said input unit and at least one interface unit.

These and other objects, features, advantages and alternative aspects to the present invention will become apparent to those skilled in the art from a consideration of the following detailed description taken in combination with the accompanying drawings.

30

## BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 shows a device for selection of an application to be visualized on a screen.

Fig. 2 depicts a flowchart of a method of selecting an application to be presented on an output unit.

Fig. 3 schematically depicts a device for determining onto which output unit to present the associated application.

5 Fig. 4 presents a flowchart of a method of selecting the output unit onto which the application is to be presented.

Fig. 5 illustrates a compact disc, as an example of a computer readable medium.

10

## DETAILED DESCRIPTION OF THE INVENTION

Reference will now be made to the figures in which various elements of the present invention will be given in numerical designations and in which the invention will be discussed so as to enable one skilled in the art to make and use the invention. It is to be  
15 understood that the following description is only exemplary of the principles of the present invention, and should not be viewed as narrowing the claims that follow.

A first and a second aspect of the present invention will now be explained with reference to fig. 1, showing a device for selection of an application to be visualized on a screen, and to fig. 2, depicting a flowchart of a method of selecting an application to be  
20 presented on an output unit.

A device to select an application to be presented on an output unit, is illustrated in fig. 1. To realise a method for selection of one application out of many applications to be presented on a screen, upon action by an input unit, that is specially designed to control applications of the same type as the selected application, requires  
25 intelligence for a number of reasons. Firstly, to identify which input unit is in action. Secondly, to determine which output unit to launch the chosen application on and thirdly, to determine which application to launch on said output unit. For these purposes, this device, to select an application, is equipped with a control unit, 102, that further is connected to a screen, 116, functioning as an output unit, to enable presenting the chosen application on said  
30 screen, 116. To enable selection of application in dependence on which input unit, 120,122,124, is in action, three input units, each containing a motion sensor, 126,128,130, are in wireless radio contact with the control unit, 102, via a respective interface unit, 110,112,114. In addition, the control unit, 102, is connected to three application units, 104,106,108, where each application unit is application specific and each application can be



contained in one application unit only, in order to realize the selection of the associated application. There is thus one interface unit, 110,112,114, per input unit, 120,122,124.

There are more interface units and output units than what is disclosed and described here. However, these will be further described in relation to a third aspect of this embodiment.

The information about which application to present on the output unit upon an action by a certain input unit, 120,122,124, i.e. the associations between the input units, 120,122,124, and the specific application units, 104,106,108, is stored in a database, 118, that is connected to the control unit, 102.

As illustrated in fig. 2, according to a preferred embodiment of a method of selecting an application to be presented on a screen, 116, starts by providing at least two input units, 120,122,124, where a first input unit, 120, is associated with at least a first application unit, 104, and a second input unit, 122, is associated with at least a second application unit, 106, step 202. Subsequently, the step of sensing an active input unit, step 204, comprises sensing a motion by an input unit, 120,122,124, transmitting a radio signal from the input unit, 120,122,124, to the corresponding interface unit, 110,112,114, and receiving the radio signal transmitted from the input unit, 120,122,124, in the control unit, 102, via the respective interface unit, 110,112,114. Thereafter, the control unit identifies the active input unit, 120,122,124, step 206, and determines the application of the application unit, 104,106,108, that is associated with said active input unit, 120,122,124, step 208. The control unit, 103, then orders launching of said application on the output unit, 116, step 210.

A third and fourth aspect of the present invention will now be explained with reference to fig. 3, schematically depicting a device for determining onto which output unit to present an associated application, and to fig. 4, presenting a flowchart of a method of selecting which output device to launch the application on.

According to the present invention there can thus be several output units onto which applications can be presented.

In fig. 3 it is illustrated a device to determine, for one input unit, the output unit onto which to present one associated application. According to this embodiment, said device comprises at least two output units in the form of two screens, 302, 304, connected to a control unit, 308, that further is connected to at least two interface units, 310,312, each corresponding to a different output unit or screen, 302,304, and a signal strength determination unit, 306. The input unit, 314, equipped with motion sensor, 316, is in wireless radio contact with the interface units, 310,312.

The device according to the third aspect of the present invention, as illustrated in fig. 3, preferably contains several input units, several application units, and a database, as the device according to the first aspect of the present invention, as shown in fig. 1. For clarity these additional units have been omitted in fig. 3, to draw the reader's attention to the central  
5 idea behind said third aspect of the present invention.

The method according to the fourth aspect of the present invention includes a determination of which output unit in the form of a screen, 302,304, to launch an application on. This determination is based on the closeness of an active input unit, 314, in relation to the interface units, 310,312, each corresponding to a different screen, 302,304, and each  
10 preferably in the vicinity of the respective screen, 302,304.

This method of determination, starts, step 402, by displaying an application on a first screen, 302, step 404. Upon movement of the active input unit, 314, the interface units, 310,312, that includes measurement units, receive a radio signal and measure the strength of said radio signal that is transmitted by the moving input unit, 314. This signal strength  
15 information is then forwarded to the control unit, 102,308, that orders the signal strength determination unit, 306, to compare the different signal strengths and determine which signal strength is the highest. After this determination by the signal strength determination unit, 306, information on which measured signal is the highest is forwarded to the control unit, 308. Said control unit, 308, then determines which interface unit, 310,312, has measured this  
20 highest signal strength and selects the output unit, 302,304, that corresponds to said interface unit, 310,312, onto which the application is presented.

In large, the control unit, 308, determines whether the active input unit, 314, is closer to the interface unit, 310,312, corresponding to the second screen or output unit, OU2, 304, than the interface unit corresponding to the first screen or output unit, OU1, 302.

25 Again in large, if the input unit is closer to the second screen, 304, e.g. if the question is answered affirmatively, Y, the displaying of the associated application is changed from the first screen or OU1, 302, to the second screen or OU2, 304, whereupon the application will be resumed on said second screen or OU2, 304. If said question is answered negatively, N, i.e. if said input unit, 314, is not closer to the second screen or OU2, 304, than  
30 the first screen or OU1, 302, the displaying of the associated application is continued on the first screen or OU1, 302.

More precisely, the control unit, 308, decides to present the application on the screen, or output unit, 302,304, for which the corresponding interface unit, 310,312, has

measured the strongest radio signal. The control unit, 308, thus selects the output unit or screen, 302,304, in dependence on the measurements.

Upon every movement of the active input unit, 314, the strength of the radio signal transmitted from said active input unit, 314, is measured and in dependence to this  
5 measurement an output unit or screen, 302,304, is selected to display an associated application.

After ending or pausing presenting of an associated application on an output unit or screen, 302,304, the application is resumed on the output unit, 302,304, upon activation of the input unit, 314, if the interface unit, 310,312, corresponding to the output  
10 unit, 302,304, has measured the strongest radio signal.

In addition, fig. 5 illustrates a compact disc, 502, as an example of a computer readable medium, being a computer program, having thereon a computer program code, to make a computer performing the method according to the invention, when said computer program is loaded in the computer which is provided in the device according to the invention.

15 This invention can be varied in many ways, for instance:

In another embodiment of the present invention the method presents a selection of applications, each associated with the input unit, upon action by said input unit.

In another embodiment of the present invention, the device for selection of an application to be presented on an output unit, comprises at least two interconnected control  
20 units.

In another embodiment of the present invention, the method resumes the presentation of a selection of possible applications, upon movement of the active input unit.

In another embodiment of the present invention, the device for determining the output unit onto which to present the application, comprises more than one input unit.

25 In still another embodiment of the present invention, the step of determining the output unit, onto which to present an application, includes measuring the strength of a signal, emanating from at least two interface units, each related to a different output unit, at, at least one input unit, and selecting an output unit in dependence of the measurement.

30 In still another embodiment of the present invention, the step of determining an output unit, onto which to present an application, includes determining the physical position, within perception limits of at least one output unit, of an active input unit in relation to at least two interface units, each related to a different output unit, and selecting an output unit in dependence of the determined position. In this case a positioning signal is either sent from an interface unit or from the active input unit.

In still another embodiment of the invention, the step of identifying the active input unit, includes sensing a signal emanating from the input unit, upon pressing a button or a key on said input unit.

5 In a different embodiment of the invention, the step of identifying the active input unit, includes sensing a signal emanating from the input unit, upon activating a touch control or touch sensitive region positioned on said input unit.

In a different embodiment of the invention, the step of identifying the active input unit, includes sensing a signal emanating from the input unit, upon activating a heat sensitive sensor positioned in said input device.

10 In a different embodiment of the present invention, the step of identifying the active input unit, includes sensing a directional infra-red (IR) signal emanating from the input unit.

In a different embodiment of the present invention, the step of identifying the active input unit, includes sensing a diffuse infra-red (IR) signal emanating from the input unit.

15 In yet a different embodiment of the present invention, the step of identifying the active input unit, includes sensing a microwave signal emanating from the input unit.

In yet a different embodiment of the present invention, at least two applications are selected to be displayed on the same output unit.

20 In still yet another embodiment of the present invention, one or more applications are selected to be displayed on at least two output units.

In still yet another embodiment of the present invention output units can be realized by acoustic transmitters, i.e. loudspeakers.

25 In still yet another embodiment of the present invention, a selection of at least one application is presented on one type of output unit, for instance a screen, whereas the application, upon selection, is launched on a second type of output unit, for instance, a loudspeaker system.

30 In still yet another embodiment of the present invention, a selection of at least one application is presented by one type of output unit, e.g. a loudspeaker system, and the application is launched on the same type of output unit, upon selection of said application by applying voice control.

There has thus been described a device and a method according to the present invention with the following advantages.

The method of selection an application to be presented on an output unit has the advantage over the prior art in that it enables a quick and easy access to the application, since the input unit is associated with an application unit of the chosen application, and control of the application, since the input unit is specially designed for applications of the same type as said associated application, when using the input unit to present or display the association on a multifunctional, i.e. generic, screen.

The method according to the present invention also has the following advantages:

it enables an input unit to select an application to be displayed on an arbitrary screen.

it can also comprise a selection of arbitrary screens, onto which the selected applications can to be displayed.

it enables further an input unit to select an application, by using a wireless contact between said input unit and at least one interface unit.

Another advantage of the device according to the present invention, is that it enables an input unit to select an application to be visualized on a screen, which input unit is specially designed for the selected application.

Yet another advantage of the device according to the present invention is that it circumvents the process of searching through lengthy menu structures, when selecting the desired associated application to be displayed on an output unit.

Still another advantage of the present invention is that it enables an input unit to select an application to be visualized on an screen, which screen is determined by the strength of a radio signal, that is transmitted by the active input unit.

## CLAIMS:

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(44)

1. Method of selecting an application to be presented on a least one output unit, where a first input unit is associated with at least one first application and a second input unit is associated with at least one second application, including  
5 identifying an active input unit, and  
presenting the associated application on the output unit, upon the identification of the active input unit.
2. Method according to claim 1, in which the step of identifying the active input unit, includes  
10 sensing a motion of the input unit.
3. Method according to claim 1, including  
determining the output unit, among at least two output units, onto which to  
15 present the associated application.
4. Method according to claim 3, in which the step of determining the output unit, includes  
measuring the strength of a signal, emanating from the input unit, at, at least  
20 two interface units, each related to a different output unit, and  
selecting an output unit in dependence of the measurement.
5. Method according to claim 4, including  
selecting the output unit for which the corresponding interface unit has  
25 measured the highest signal strength.
6. Method according to claim 1, including  
controlling the selected application by the active input unit that is specially  
designed for applications of the same type as the associated application.

7. Method according to claim 1, including  
starting the associated application if said associated application is singular.
8. Method according to claim 1, in which the presenting of the associated  
5 application is performed on a visual screen.
9. Method according to claim 8, in which the visual screen is a television screen.
10. Method according to claim 1, in which the associated application is the  
10 application that was presented when the input unit was used last time.
11. Method according to claim 1, in which the presenting of application, includes  
resuming the application, subsequent to ending or pausing said application.
- 15 12. Method according to claim 1, including  
associating at least one active input unit with at least a first and a second  
application, upon using said at least one active input unit.
- 20 13. Device for selection of an application comprising,  
at least a first application unit,  
at least a second application unit,  
at least one output unit,  
a first input unit associated with at least a first application unit,  
a second input unit associated with at least a second application unit, and  
25 a control unit, arranged to identify an active input unit, and to present the  
associated application on the output unit, upon the identification of an active input unit.
14. Device according to claim 13, comprising,  
at least one motion sensor, arranged to sense a motion of an input unit.
- 30 15. Device according to claim 13, comprising  
at least a first output unit,  
at least a second output unit,

at least two signal measurement units, each being related to a different output unit, arranged to measure a signal strength of a signal, emanating from the input unit, and where the control unit further is arranged to select an output unit in dependence of the measurement.

5

16. Device according to claim 15, comprising a signal strength determination unit, arranged to determine the highest signal strength measured by the signal measurement units.

17. Computer program product comprising a computer readable medium, having thereon,  
computer program code, to make a computer, when said program is loaded in the computer, execute a procedure,  
to select an application to be presented on at least one output unit, where a first input unit is associated with at least one first application unit and a second input unit is associated with at least one second application unit,  
to identify an active input unit, and  
to order presentation of the associated application on the output unit, upon the identification of the active input unit.

18. Computer program element comprising,  
computer program code to make a computer to execute a procedure,  
to select an application to be presented on a least one output unit, where a first input unit is associated with at least one first application unit and a second input unit is associated with at least one second application unit,  
to identify an active input unit, and  
to order presentation of the associated application on the output unit, upon the identification of the active input unit.



## ABSTRACT:

17 08. 2002

(44)

The invention relates to a method and device for selecting an application to be presented onto an output unit or screen, a computer program product and element for carrying out said method, as well as a method and device for determining the output device onto which to present said application on.

5           A device for selecting an application to be visualized on at least one screen, contains one input unit that is associated with at least one first application unit, and another input unit that is associated with at least one second application unit, in which an active input unit is identified, and the screen onto which to visualize the associated application is determined, upon identification of the input unit.

10           The device enables an input unit to select an application to be visualized on a screen, which input unit is specially designed for the selected application.

Fig. 1

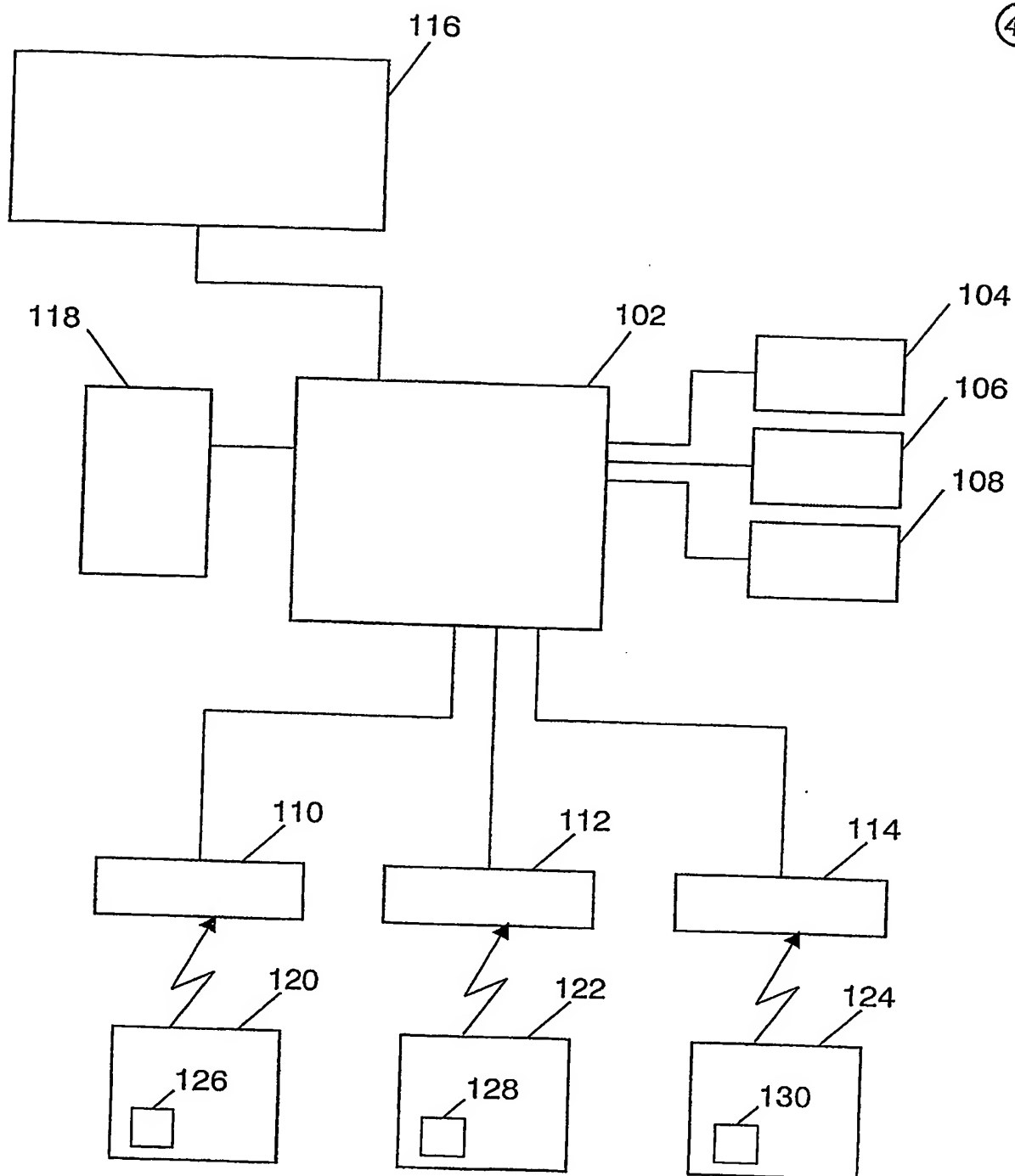


FIG.1

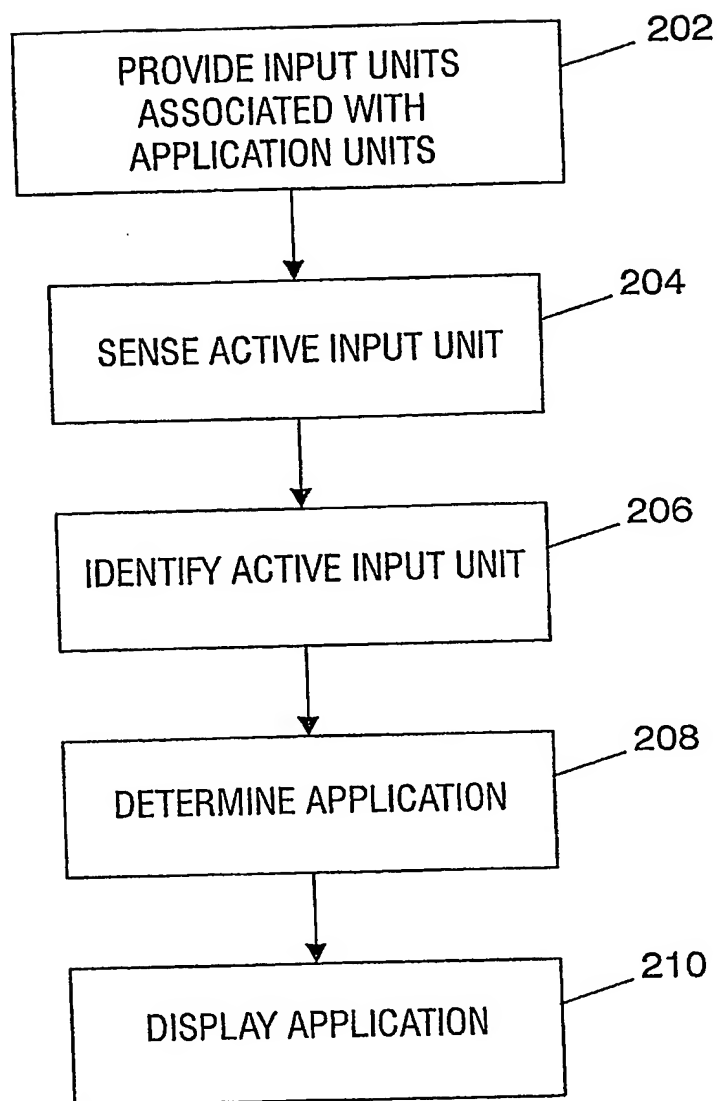


FIG.2

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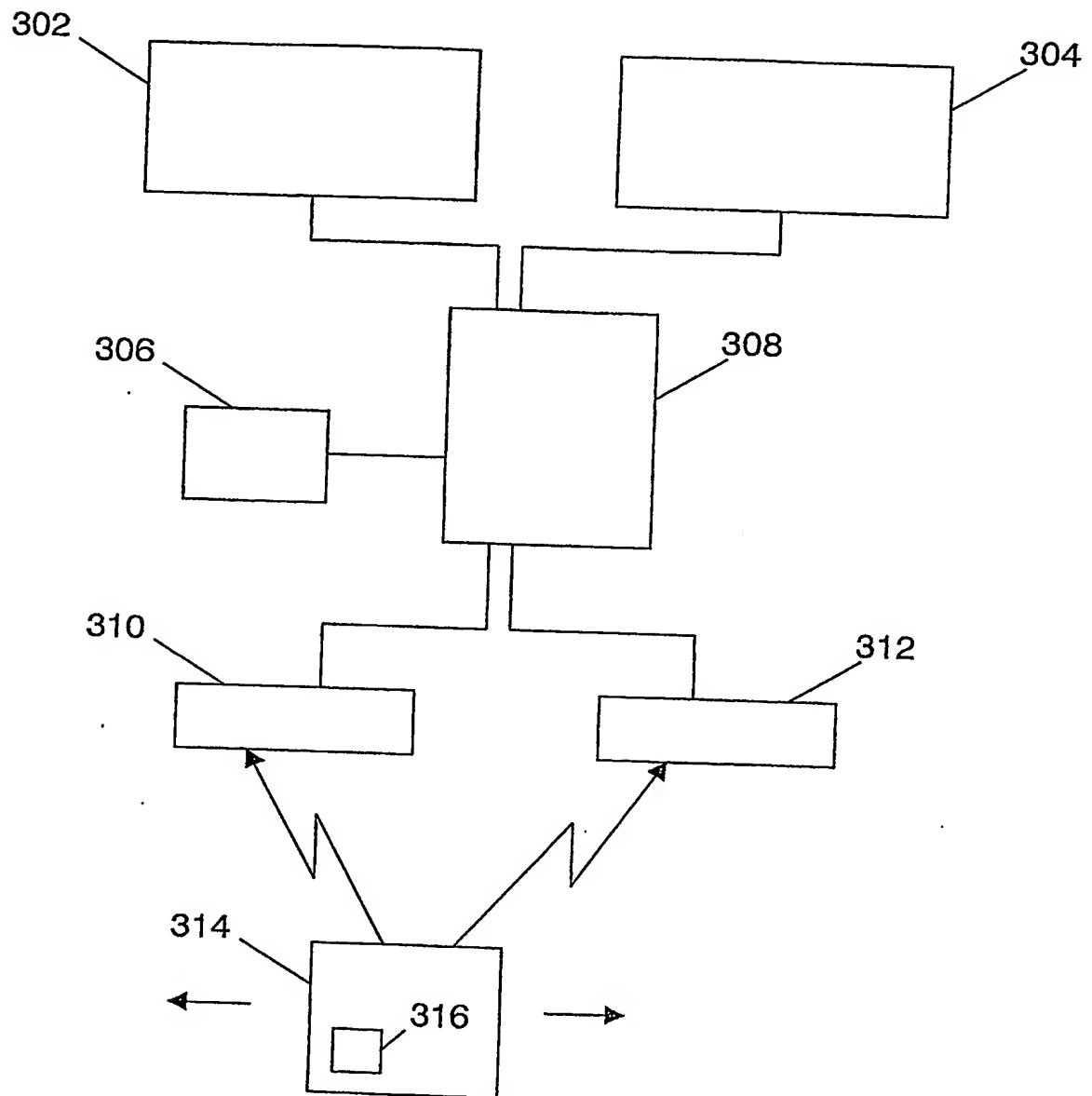


FIG.3

4/4

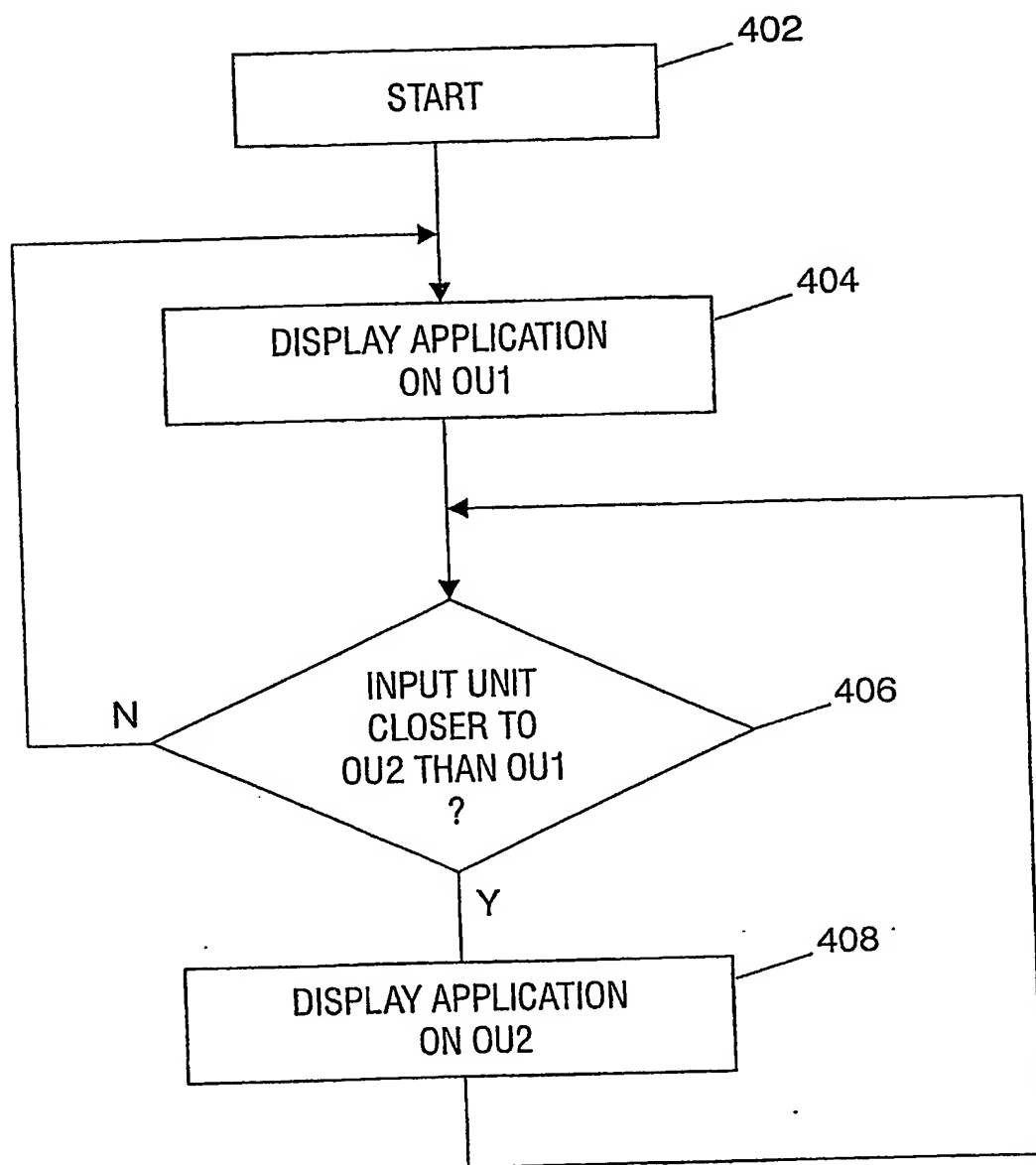


FIG.4

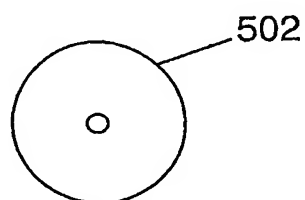


FIG.5